311 In short, the habitat conditions are as follows, given that the Cinaruco
●22 Yaruro have a technology including hunting, gathering, fishing, and animal husbandry, and horticulture. All resources are found within a narrow band of about 4-5 miles between the Cinaruco river and the high sand dunes occurring in the interfluve to the north, in which only an occasional deer is found. Within this space there are three major resource areas distinguishable: 1) the open savanas for hunting and gathering, the former involving much greater dispersion of resources than the latter and consequently quite different techno-social conditions. Both activities change location markedly with the seasons.2) The rivers and *caños* are used for water-animal hunting and for fishing. Fishing also displays a seasonal shift between river and *caño*, whereas river hunting for alligator and turtle becomes totally impracticable in the wet season. 3) The wooded areas, themselves dispersed, include the gallery forests of smaller streams where flooding is limited but water
[241] and soil abundant and the *montes* occurring here and there in mid-savana. These areas provide the Yaruro with garden sites. Away from the streams, there are also occasional tiny patches of suitable soil not close enough to the water table for dry season use, but which get enough rain to be used for planting of seasonal crops in the wet season. Schematically, the situation is shown on Table II_{1}[1], a list of foods entering into Yaruro economy and their relative seasonal occurrences, and on Maps I and II_{1}[2] of the seasonal locations of these resources.

182 The particular relationship between a peculiar habitat, such as the one we have just described, and the technology operating within it, here preponderantly a swidden technology, sets upper limits to territorial, socio-economic, or cultural expansion, and limits to changes in socio-cultural forms. With regard to the habitat dimension of the relationship, we may say in Harris's words, "Limitations imposed by the manner in which plants
[121] and animals convert solar energy into comestible material in combination with the availability of land and water resources, the rate of reproduction of the natural biota, and the total ecological balance, furnish conditions unalterable by individual or collective whim",[3] at least with the given level of technological development possessed by the Yaruro. The Yaruro are in no position to change the total ecological balance, to increase the carrying capacity of the land or water for plant or animal species. For
182 example, under the llanos conditions, the use of slash-and-burn horticulture exhausts arable land at a rate greater than it recovers. The proportion of
241 land held in reserve for future cultivation must be several times greater than that under cultivation at any given moment, the proportion varying
311 with such factors as the rate of fertility recovery, the type of weed and grass invasion, the rate of growth of the secondary forest, the rate of mechanical reconstruction of the soil, and so on. Thus of the total amount of land potentially available in a given expanse of territory, only a part can be horticulturally exploited at any one time. Where the total potentially arable land in a given expanse is itself only a small proportion of the total area, the amount of land available for cultivation at any one moment is, of course, minute. This ecological balance in turn limits the human population

1[1] [see pp. 31-39, category 116 -- Analyst]
1[2] [see pp. 40-41, category 102 -- Analyst]
1[3] [for footnote, see p. 42, category 116 -- Analyst]

121 182 433 [241] [22] harvesting it, require no centralized authority, and render it possible and even probable that the management of production or distribution be carried on without it. The same may be said, on the whole, for all the hunting, fishing, and gathering harvests, a notable and probably permanent feature of Yaruro ecology. Perhaps the only crop which has a marked seasonality is corn, but its absolute size in the total production, its geographical distribution in production, and its position relative to all other harvests renders it insignificant as an effective promoter of managerial functions and [56] formal arrangements of social stratification. It is unlikely, given Yaruro ecology that the forms of surplus would change; consequently their concomitants in social structure would remain constant.

On the basis of the formal characteristics of the ecology and of the surpluses one may deduce an essentially egalitarian social organization, [56] with minimal ranking and leadership and with dispersion of the acts of economic distribution among a number of adult males or females any one of [462] whom may produce a small harvest surplus at any time. With a relatively steady and reasonably comfortable total subsistence base, and with eco- 182 logical arrangements which are spatially repeated in identical form up [582] and down river, no necessity exists for stringent rules of local exogamy as an institution to regulate the labor force by redistributing its members. One would expect frequent marrying in the village according to the convenience of the contractants, and out-marriages to occur either as economic [562] opportunity offered elsewhere or lack of women at home urged one out. The combined biological and productive role of women, with their particularly important technical roles in gathering and in food preparation, suggest sedentary communities and a matrifocal emphasis in the rules of residence. However, the importance and location of the men's economic contribution [591] might be expected to balance this to a degree so that one might deduce male uxorimatrilocal residence but with other, subsidiary patterns. This in fact occurs, occasional male matrilocality or patrilocality [1]A comprising the subsidiary residence rules. Political authority would be vested [623] in the community, mainly among its elders, since little or no ranking or stratification is to be expected. In fact, Yaruro socio-political forms, in general, conform to all of these deduced conditions. They represent a model for any society based on the kinds of ecological conditions or form of ecology we have described. Where the ecology is even more restricted the deduced characteristics should be matched even more closely by the observed [171] data. In this respect, the Sirionó, for example, tend to confirm the hypothesis, in that their partial sedentariness which revolves about horticulture is associated with matrifocal social organization: matrilocality and matrilateral cross-cousin marriage. They also possess autonomous local communities. [1]A The Apinayé also tend to confirm the hypothesis. [2]A

Where our analysis permits us to predict about the course of the ecological conditions, we should also be able to extend this prediction to the social structure. Since, under the given ecology, we can establish a maximum population for each Yaruro socio-cultural unit, and under the given technology we would expect no significant change in the ecology, no significant

[1]8,19,20 [For footnotes see pp. 43-44 category 116 --Analyst]

102
311
131
361
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MAP I- Winter Resource Areas

Numerals superscript numbers appearing in Table I

1 inch = ca 1.25 mi

Maps by Jo Leeds.

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

[1 p.d]

7: Leeds E-4, 5 (1958) 1964 SS19 Yaruro SS19

Some Problems of Yaruro Ethnohistory*

Anthony Leeds

I was first led to consider Yaruro history because the ethnographic phenomena I found differed radically from those described by Petrullo (1939 *a*). Only historical research could resolve these differences. I shall first examine the discrepancies, then turn to the kinds of historical sources relevant to resolving the problems and to some of the material already examined, and, finally, briefly discuss the direction that the results appear to be taking.

I

Petrullo, describes the Yaruro of the Capanaparo River as being hunters of river and llanos animals, fishers of river fish, and gatherers of seeds, roots, and fruits. He denies the presence of horticulture, except among a few "acculturated" groups. As far as the monograph informs us, he visited only Yaruro near the mouth of the Capanaparo and on islands in the Orinoco during the months of the dry season. He did not visit the Arauca, Cunaviche, upper Capanaparo, Riecito, and Sinaruco rivers, on all of which Yaruro are found today, and apparently have been living indefinitely into the past, according to old maps.[1] On the basis of the groups visited, he asserts that the Yaruro were not horticultural. Kirchhoff (1948 *a*: 456) repeats this assertion, adding that Gilij (1780-1784: Vol. 3) mentions the use of green corn — a sign, according to Kirchhoff, of the recent adoption of corn at that time. No basis is given for this statement. Le Besnerais, in several publications (1948; 1950*a*; 1951; and, with Dreyfus-Roche, 1954), repeats that the Yaruro were hunters and gatherers, but, in his most recent work (1950 *b*; 1954; Ms.; Personal communication,

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1 Cf. maps listed in the special section of the bibliography, many of which show the location of the Yaruro, Otomaco, Achagua ("as Chaguas"), Sáliva, Aruaca, Caribe, or a number of other tribes at various points in history.

7: Leeds E-4, 5 (1958) 1964 SS19 Yaruro SS19

1939), on the basis of later field research, he completely rejects his previous stand.

In 1949, after his earlier publications, Le Besnerais (cf. 1954) made a census of the entire Capanaparo and Riecito rivers, discovering among other things:

A) That most Yaruro settlements had dry season locations on or near the river, banks or on the sand bars in the river, and wet season locations back from the rivers on higher sand dunes,

B) that there were corresponding house types for each kind of location,

C) that a great many of these settlements appear to have had two divisions mainly in the wet season locations — often at considerable distances from each other, sometimes very close,

D) that near all winter locations and in all settlements along the entire length of the Riecito and Capanaparo rivers gardens existed with standard crops mentioned in my own work (1961 *a*, 1962),

E) and, by implication, that these garden plots are not readily visible from the river nor from dry season locations.

Fiasson (1947), speaking of a trip probably made in 1943, mentions gardens for the Yaruro in the Capanaparo-Meta area. The missionary, Raymond Kook, showed me pictures in 1958 of gardens on the upper Sinaruco. And, in the neighborhood of the mission station, near Guachara and along the Caño del Medio and the Cunaviche River, all the Indians had horticulture. These Indians also reported gardens along the Arauca River. The linguist, Thomas P. Rootes, describes gardens along the Riecito and Sinaruco, and I have myself published in detail on Yaruro horticulture (1961 *a*).

In sum, present sources indicate horticulture for all Yaruro, going back at least to 1945 or 1946 and undoubtedly earlier — a period at maximum no more than twelve years after Petrullo's *dry-season* visit in 1934. It is hard to believe that the horticultural practice was diffused the length and breadth of Yaruro-land and integrated into a well-organized transhumance and even into the world view all in fifteen years. Nevertheless belief is not adequate proof. The only recourse is to try to resolve the problem by earlier evidence.

The second major difference between my findings and those of Petrullo relates to the asserted existence of matrilineal "clans", characterised, in localities, by a sib core of women and their children plus the locally inmarried husbands. Nowhere in Petrullo is proof given for the *unilineality* which is implied by the term clan, though the *matrifocality* seems genuinely confirmed by the genealogies reproduced. Matrifocality is not congruent with matrilineality, and, try as I might, I was not able to establish the latter. I am not ready to assert that matrilineality therefore does not, or did not, exist but I was quite unable to elicit any evidence for it.

A related aspect is, of course, exogamy. Petrullo claims that marriage can only occur reciprocally between the two clans, marriage *within* which would

7: Leeds E-4, 5 (1958) 1964 SS19 Yaruro SS19 ●
Guahibo SC14

Y
Petrullo's own linguistic data includes the words for corn, *(pwe)*, manioc 174
(pae), and other planted foods. The words for corn and manioc are certainly 142
not word borrowings from Spanish. This tends to confirm the hypothesis of 241
an aboriginal presence at least of these crops.

A second point is that Yaruro and Guahibo subsistence is transhumant, G
consisting of a wet-season gardening predominance and a dry-season hunting Y
and/or fishing predominance. Guahibo, both presently and in various historical 174
sources,[12] are described as being horticulturalists as well as hunters. It is of 22 ●
first importance to note which season is being discussed when the tribal sub- 241
sistence is being described. With this sort of transhumance, one would expect the decriptions in the literature to disagree; as they do, according to the season of description. Similarly there is much local ecological variation, which appears to determine variations in the predominance of horticulture or hunting or fishing or collecting.

Third, the various tribes — Yaruro, Guahibo, Kuiva, Síliva, Achagua, and G
possibly the Otomaco, as well as more distant groups - - maintained a complex 721
ecological relationship to llanos and extra-llanos resources by means of three 433
major institutions, trade, war, and raiding. For example Kuiva, described by my Yaruro informants and others as being "muy brabos",[13] even today raid both Guahibo and Yaruro villages, but apparently only when these are well supplied, *after* harvesting (Reichel-Dolmatoff, 1961). That is, they drain off a certain amount of the harvest surplus (cf. Leeds 1961 *a*: 23) from the horticultural groups. With this food, they are able to maintain a larger population in the hunting areas away from the rivers, which they regularly inhabit. Presumably it also compels or encourages the groups concerned to produce more as a hedge against such depredations, thus contributing to overall population maximinization. The raiding pattern may also account for the use of green corn as remarked before.

At the same time, the Guahibo raid Yaruro gardens as the corn and manioc- G
ripen, but are limited from so doing by the frequent presence of Yaruro in 174
their gardens during the harvest period and by the distance of the gardens 721
from the Guahibo villages. The Guahibo were also reported as formerly having carried on extensive warfare, which, it is my guess, had a subsistence foundation (cf. Kirchhoff, 1948 *b*). The peaceable Yaruro, on the other hand, have ap- Y
parently always done a considerable amount of trading up and down river in [439]
their canoes. Trade is also reflected archeologically in the stone artifacts mentioned above, since the kinds of stones used are not found in the llanos and must come from extra-llanos sources.

In short, the entire llanos area appears to me a complex ecological system Y
involving hunting, gathering, fishing, and horticulture, with trade, raiding, 174
182

[12] Cf. Crévaux, 1883; Marcano, 1883; Reichel-Dolmatoff, 1944; Vela, 1889; Wilbert, 1957.

[13] Cf. Reichel-Dolmatoff, 1961. He described the generally harsh behavior of the men, the raiding pattern, and the rough manhandling he received from the women.